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Socioeconomic, Health, Family and Alienation Scores of Indiana Counties

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This publication identifies and describes socioeconomic health, family and alienation scores for Indiana counties and provides a background in social indicators to assist in their use.

An area's economic well-being is traditionally measured by an economic fact of life such as the unemployment rate, but such a measure by itself may not be a fully satisfactory indicator of an area's economic health. For example, "percent of families with employed male heads 16-64 years old and not in poverty" by itself might give retirement communities, which have unemployed but not necessarily poor retirees between the ages of 62 and 64, an unreasonably poor socioeconomic score relative to other counties. Looking at other measures, such as median family income or median school years completed, can be useful in supplementing an employment measure.

If one is going to look at a large number of such measures in order to evaluate an area's relative socioeconomic status, it may be advantageous to combine the different measures into an index. Properly done, such an index should be more reliable than any single measure, because weaknesses in individual measures tend to cancel out.

In addition to an index of economic measures, indices of health status, family status, and alienation can help an individual or group working for area improvement to identify some of the area's relative strengths and weaknesses.

Peggy Ross, Herman Bluestone and Fred Hines of the USDA recently used 1970 Census Data and 1965-1969 Vital Statistics to construct four indices of well-being for 3,097 U.S. counties.[1] Their results are particularly interesting because they intend to replicate the study using 1980 Census Data when these become available. An understanding of their four indices will help you judge not only how a county ranked relative to other counties in 1970, but also how it has changed and perhaps how you or others might want it to change in the future.

A Social Index Weakness

In order to use social indices, it is necessary to understand some of their weaknesses. A basic weakness of such composite indices is that one is tempted to throw in every measure one can think of in order "not to miss anything."

The need to limit the number of measures in an index can be illustrated by looking briefly at a set of indices devised by Ben-Chieh Liu of the Midwest Research Institute. He published an evaluation of 243 Standard Metropolitan Statistical Areas (SMSAs) based largely on the same 1970 Census Data used by Ross, Bluestone and Hines.[2] Where (A) is outstanding, (B) is excellent, (C) is good, (D) is adequate, and (E) is substandard, he ranked 10 Indiana SMSAs as shown in Table 1.

The *economic* index was based on, among other measures: personal income per capita, savings per capita, percent of owner occupied housing units, percent of households with one or more cars, percent of families with income above poverty level, value added per worker in manufacturing, sales per employer in retail trade, an index of income inequality, and the unemployment rate. The *social* index was based on, among other measures: labor force participation rate, percent of labor force employed, mean income per family member, percent of children under 18 living with both parents, an individual education index, per capita local government expenditures on education, motor vehicle registrations per 1,000 people, and percent of households with one or more automobiles. The *health and education* index was based on, among other measures: infant mortality per 1,000 live births, death rate per 1,000 population, median school years completed by persons 25 and older, number of dentists and hospital beds per 100,000 people, hospital occupancy rates, and per capita local government expenditures on health.

There are so many components in each index that it is difficult to judge what an "A" or a "D" means. South Bend or Terre Haute could score low in health and education if they have a larger population of elderly (since the death rate has not been age adjusted), or if they don't have a high hospital occupancy rate because they are healthy, or if they're economical and don't spend a large amount of government money on health. Because they include so many components, the indices confuse rather than clarify.

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1. "Indexes and Rankings for Indicators of Social Well-Being for U.S. Counties: Statistical Supplement for Rural Development Report No. 10." USDA, Economics Statistics and Cooperative Services.

2. Liu, Ben-Chieh, *Quality of Life Indicators in U.S. Metropolitan Areas: A Statistical Analysis.* New York: Praeger Publishers, 1976.

Table 1. Liu's 1970 Ranking of Indiana Cities.

SMSA	Economic	Health & Education	Social	Overall
Large Size				
Gary-Hammond-East Chicago	D	D	D	D
Indianapolis	A	D	C	C
Louisville	B	E	D	D
Medium Size				
Evansville	B	D	C	C
Fort Wayne	A	B	A	A
South Bend	A	C	B	A
Small Size				
Anderson	B	D	D	C
Muncie	B	C	D	B
Terre Haute	B	D	D	B

How Ross, Bluestone and Hines Obtained Their Social Indices

In contrast Ross, Bluestone and Hines concentrated on limiting the number of measures in each of their indices. This makes them vulnerable to chances of omitting important measures, and *that* makes it necessary for anyone using these indices to know why the included measures were chosen.

The authors (a sociologist and two economists) used their professional judgment to choose an initial set of 35 measures which they thought reflected conditions of employment, income, labor force participation, education, health, family status and social disorganization.

They then reduced this group of 35 measures to 12 by eliminating measures which were redundant, measures which they thought were too technical, measures with undesirable patterns of variation, and unstable measures.

Redundant Measures

As an example of eliminating redundant measures, the initial 35 variables included per capita income, mean wage rates, *and* median family income. Ross, Bluestone and Hines eliminated per capita income and mean wage rates.

Their choice of median family income has many advantages. The use of *median* (the most commonly reported) family income, rather than a mean (average) helps you not to overestimate the economic status of a county which has a few persons with very high incomes. The use of *income* rather than *wages* helps you not to underestimate the economic status of a county with a larger number of people who receive non-wage income.

On the other hand, the use of *family* rather than *per capita* income may make a county with a high percentage of larger families look better than it otherwise would. You must judge for yourself how seriously the omission of such variables as value added per worker in manufacturing, savings per capita, and percent of owner occupied housing affects your use of the socioeconomic index.

Technically Complex Measures

Complex measures such as the Gini coefficient, which shows the relative equality of income distribution, were dropped as too technical for non-professionals. If you consider income inequality an important measure of a county's socieoeconomic status, you must realize that this is one of the many qualities not measured by the indices which follow. The benefit of this omission of complex variables is that you can feel fairly certain that most people using the indices will understand the component measures.

Measures with Undesirable Variation Patterns

The elimination of measures due to their patterns of variation (i.e., how they differ over counties) is a technical matter, somewhat more difficult to understand. Basically, they wanted a set of measures which could be divided into four or five groups, such as a health group or an alienation group, so that they could construct an index based on each. In order to do this, they wanted to eliminate measures which related strongly to more than one of the groups *and* to eliminate measures that didn't seem to relate strongly to any group. For example, they eliminated homicide rates, probably because they related both to the group of socioeconomic measures and to the group of alienation measures.

Unstable Measures

Measures based on short observation periods were eliminated as "unstable." For example, they eliminated the *unemployment* rate, since their data on this were based on a sample taken during a single week and, therefore, might be unrepresentative of an area's overall unemployment pattern. This omission is not as serious as it first appears since they do include an *employment* rate, which even has a number of advantages over an unemployment rate.

The traditional unemployment rate suffers from not adequately representing the number of discouraged and underemployed workers. Those who are so discouraged that they no longer look for a job are not counted. Those who are employed less than full-time when they would prefer full-time employment are considered underemployed workers, and this does not generally show either. Moreover, these phenomena differ across counties, so that a ranking of counties by straight unemployment rate may be misleading. Use of an *employment* rate eliminates the problem of not counting the discouraged workers, and insofar as you stipulate "employed workers, *not in poverty*," you eliminate those underemployed workers who have incomes below the poverty level.

The Indices

From their final 12 measures, the authors constructed composite indices based on four groups of measures. They are listed below. Clearly, they don't cover the full range of social qualities which determine the nature of a place. You must judge for yourself how valuable the indices based on these particular measures are for your use.

Socioeconomic Status:

1. Median family income in 1969.
2. Percent of families with employed male heads, 16-64 years old and not in poverty, 1969.
3. Median school years completed, persons 25 years and older, 1970.
4. Percent of occupied dwellings with complete plumbing, 1970.

Health Status:

5. 1965-69 annual average infant mortality rate (deaths under 1 year of age per 1,000 live births).
6. 1965-69 annual average age—standardized mortality rate from all causes per 10,000 population in 1970.
7. 1965-69 annual average age—standardized mortality rate from influenza or pneumonia per 10,000 population in 1970.

Note: Infant mortality rates vary with the age distribution of mothers. The two other mortality rates are age-standardized so that a county with a large number of elderly people (such as Clay, with nearly 19% of its population over 62 in 1970) will not have higher death rates simply because of its population's age composition when compared with a county like Monroe (with less than 8% of its population over 62 in 1970). It is unfortunate that no morbidity or "sickness" measure is included in this index, since two counties with the same death rates but different sickness rates can be very different places to live, but reliable morbidity data are not generally available. All these indicators have the great virtue of being "output" rather than "input" measures. Too often health is measured by the amount of money spent to obtain it, as indicated by physicians per 100,000 population or local government expenditures on health, rather than by results. This index does not suffer from that fault.

Family Status:

8. Percent of persons under 18 years old living with both parents, 1970.
9. Percent of families with female heads, 1970.
10. Difference in male-female labor force participation rates for persons 16 years of age and older, 1970.

Note: Many urban counties rank poorly here.

Alienation:

11. 1965-69 average annual age—standardized mortality rate from suicides per 100,000 population in 1970.
12. 1965-69 average annual age—standardized mortality rate from cirrhosis of the liver per 100,000 population in 1970.

Note: This indicator may reflect more about reporting patterns than actual incidence patterns. In the U.S. as a whole, the South ranks very well here.

Summary of Ranking by Ross, Bluestone, and Hines

Socieoeconomic: Eighteen Indiana counties are in the top 10% of the nation in socioeconomic status. Where 1 would be the highest rank and 3097 the lowest, Porter is ranked 69, Hendricks 91, and Allen 98. Sixty-two Indiana counties are in the top third of the socioeconomic ranking, and no Indiana county is in the bottom third. The top ranked county in socioeconomic status in the U.S. is Hinsdale County in Colorado.

Health: Two Nebraska counties (Banner and Hooker) ranked first and second, respectively, in the nation. Posey, Monroe and Tippecanoe were the top Indiana counties in the health index, but 21 Indiana counties are in the top third of the nation, and only 12 are in the bottom third.

Usually, health and socioeconomic status are closely related. Indiana, while still scoring above average in terms of health status, had decidedly fewer counties ranked in the top third in health than ranked in the top third in socioeconomic status. This is shown in Table 2.

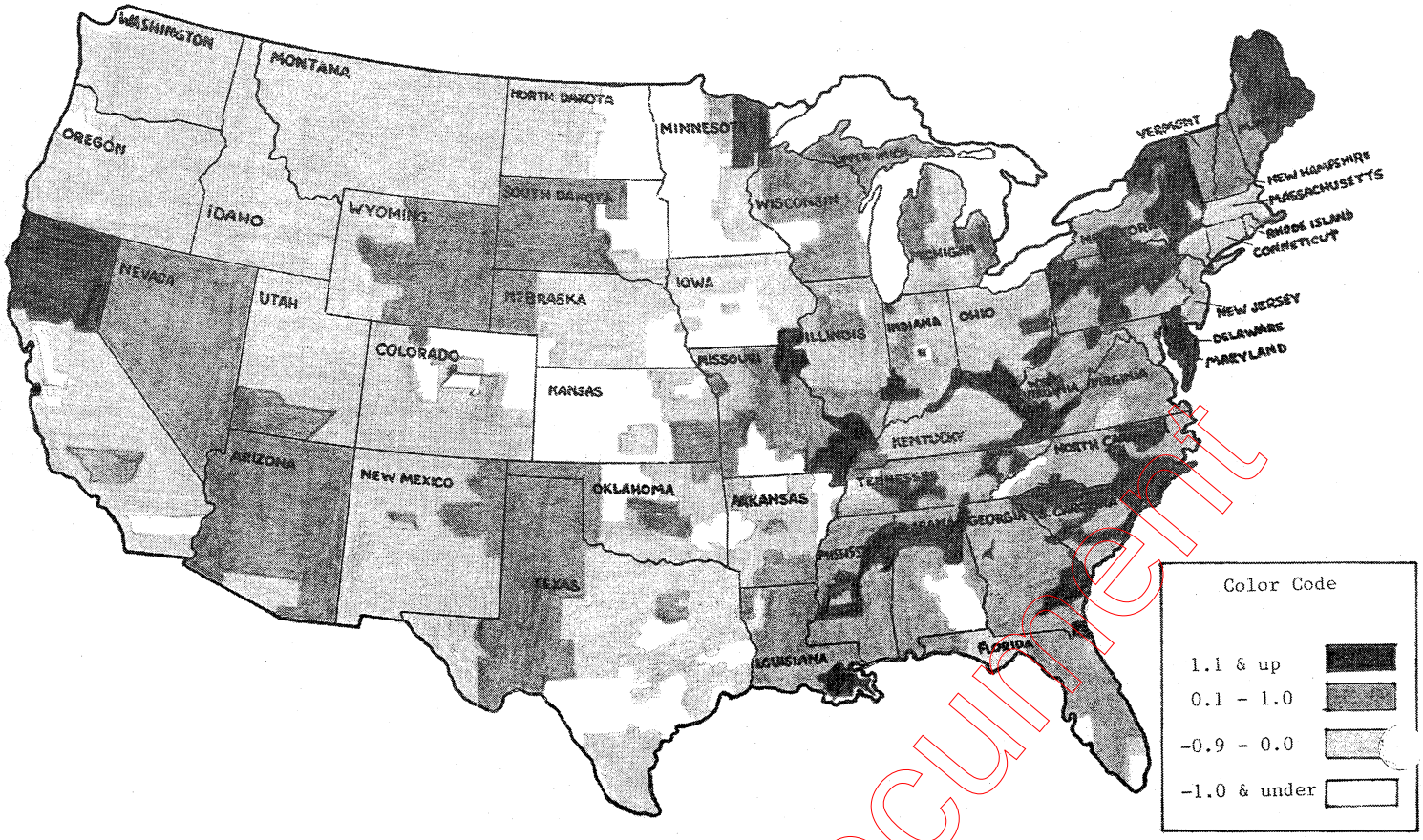
Table 2. Number of Indiana Counties in Upper, Middle and Bottom Third of U.S. Counties.

	Socioeconomic Status	Health Status
Upper 1/3	62	22
Middle 1/3	28	58
Lower 1/3	2	12

One might expect that personal characteristics of the Indiana population such as sex distribution, marital status, number of children or even income level could explain much of this unexpectedly poor showing in the health status index. However, a study by Guy Orcutt et al.[3] examined county mortality rates standardized not only for age, but also for other personal characteristics such as sex, schooling, relative income, marital status, and average number of children. They then compared the mortality rate for a county which would be predicted on the basis of its population's personal characteristics

3. Guy H. Orcutt, Stephen D. Franklin, Robert Mendelsohn, and James D. Smith, "Does Your Probability of Death Depend on Your Environment?" A Microanalytic Study, *American Economic Review*, February, 1977. The U.S. map, "Excess Deaths per Thousand," from this article is reproduced here by permission of Guy H. Orcutt.

Excess Deaths per Thousand.



with the county's actual death rate. They hoped to identify counties where nonpersonal factors explained unusually high or low death rates. Their results are shown in Figure 1, where "excess deaths per thousand" is the difference between the actual and the predicted death rates. The darker the area, the larger the number of deaths not explained by personal characteristics. It appears that Indiana has several areas where death rates may not be well explained by personal characteristics.

Family Status: LaGrange, Carroll and Porter rank highest in the family status index, but 42 Indiana counties rank in the top third of the nation, and only five rank in the bottom third. Of those five, the lowest ranked was only 2351. Again, two Nebraska counties (McPherson and Love) top the nation.

Alienation: In the U.S., western states seem to have the worst rankings in the alienation index. Owen, Sullivan and Decatur counties rank as having least alienation in Indiana. Twenty-two Indiana counties rank in the top third of the nation.

Tables

The socioeconomic ranks and scores of the Indiana counties are given in Table 3, health status ranks and scores in Table 4, family status ranks and scores in Table 5, and alienation ranks and scores in Table 6.

The *rank* is out of the 3,097 counties. A low number represents a high ranking.

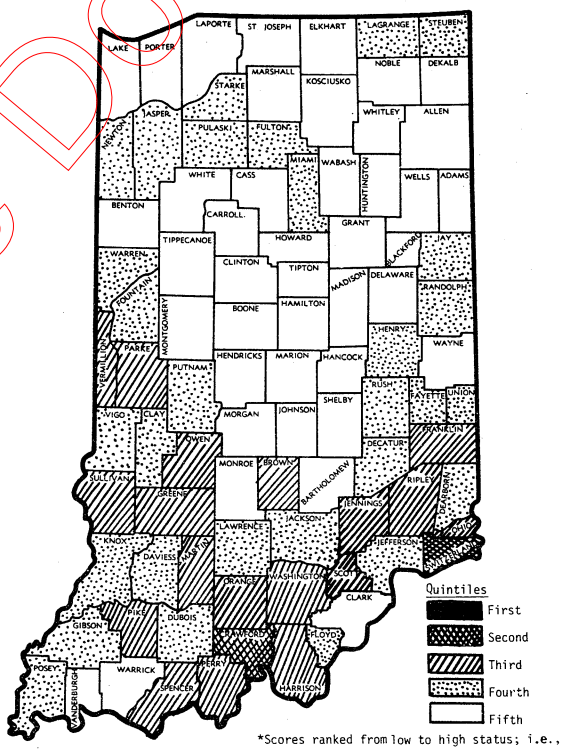
The *score* is based on a transformation of the numerical index so that 100 equals the U.S. mean and one standard deviation equals 20. Thus, a score of 100 is equal to the U.S. average, and a score of 80 is one standard deviation below the mean. Assuming a normal distribution and a mean of 100, approximately 84% of the counties would have scores between 80 and 120; and nearly 98% would have scores between 60 and 140.

Table 3. Indiana Counties Ranked by Socioeconomic Score and Rank. High score and low rank are most desirable.

County	Score	Rank
Porter	129.6	69
Hendricks	128.1	91
Allen	128.0	98
Hamilton	127.6	107
Elkhart	127.2	120
Marion	126.2	146
Hancock	125.6	166
Howard	125.6	167
St. Joseph	125.6	170
Tippecanoe	125.1	182
Johnson	124.9	192
Lake	124.7	198
LaPorte	124.4	212
Madison	124.3	216
Huntington	124.0	222
Wabash	122.6	275
Wells	122.6	276
Grant	122.2	297
Delaware	121.9	311
Montgomery	121.9	312
Bartholomew	121.8	323
Boone	121.6	336
Cass	121.4	355
Vanderburgh	121.0	368
Benton	121.0	369
Whitley	120.6	394
DeKalb	120.6	399
Wayne	120.5	400
Marshall	120.3	411
Kosciusko	120.3	415
Shelby	120.3	418
Morgan	120.1	429
Monroe	120.0	436
Tipton	119.7	461
Clinton	118.8	514
Adams	118.7	516
Clark	118.7	518
Blackford	118.6	534
Carroll	118.4	543
White	118.4	548
Noble	118.3	554
Warrick	117.6	614
Miami	117.4	630
Henry	117.2	645
Newton	116.9	668
Vigo	116.8	677
Putnam	116.7	682
Randolph	116.6	690
Fulton	116.3	724
Jasper	116.0	744
Steuben	115.9	761
Floyd	115.7	773
Union	115.5	785
Jackson	114.6	847
Rush	114.3	869
Fountain	114.1	887
Fayette	113.9	902
Jay	113.9	907
Pulaski	113.5	934
Decatur	112.1	1024
Knox	112.0	1026
Jefferson	112.0	1029

County	Score	Rank
Dearborn	111.9	1035
Posey	111.6	1054
Daviess	110.9	1105
LaGrange	110.8	1112
Gibson	110.8	1113
Warren	110.5	1127
Dubois	109.7	1194
Clay	109.6	1197
Lawrence	109.4	1218
Starke	109.2	1232
Greene	107.9	1309
Parke	107.2	1352
Sullivan	106.5	1390
Jennings	105.6	1426
Vermillion	105.6	1427
Harrison	105.6	1431
Ohio	105.1	1458
Ripley	104.5	1504
Spencer	102.5	1623
Martin	101.7	1653
Perry	101.7	1656
Scott	100.9	1706
Owen	100.8	1711
Washington	100.8	1712
Pike	100.3	1740
Franklin	100.1	1747
Brown	99.9	1760
Orange	99.8	1769
Switzerland	92.6	2117
Crawford	80.9	2513

Socioeconomic Status.

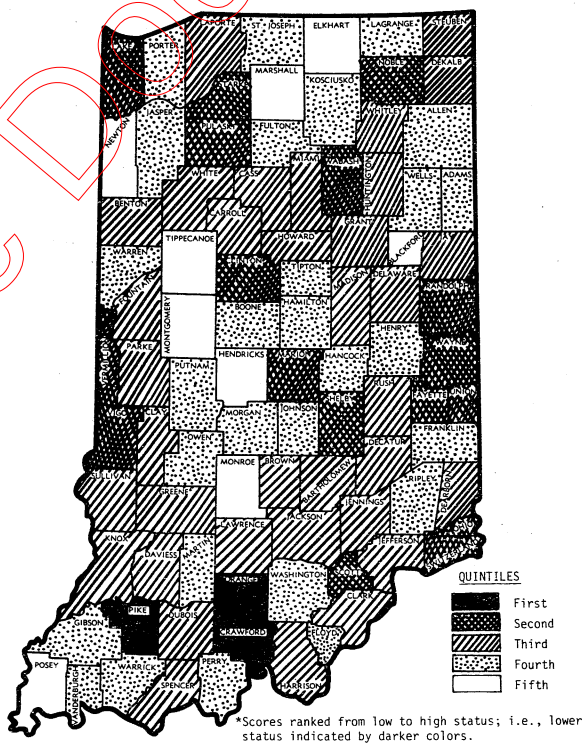


*Scores ranked from low to high status; i.e., lower status indicated by darker colors.

Table 4. Indiana Counties Ranked by Health Score and Rank. High score and low rank are most desirable.

County	Score	Rank	County	Score	Rank
Posey	125.2	127	Parke	102.0	1663
Monroe	123.2	177	Sullivan	101.6	1684
Tippecanoe	119.9	290	Jay	101.5	1694
Marshall	118.4	372	LaPorte	100.9	1741
Newton	117.1	440	Jackson	100.8	1746
Hendricks	116.8	453	Miami	100.7	1750
Blackford	115.9	510	Carroll	100.5	1762
Elkhart	114.4	608	Dearborn	100.2	1788
Montgomery	114.4	612	Daviess	100.2	1791
Porter	114.0	630	Fountain	99.8	1824
Warrick	113.5	678	Union	98.8	1885
Hancock	113.4	683	Vigo	98.8	1887
Gibson	112.3	766	Wabash	98.6	1914
Washington	111.9	797	Ohio	98.4	1931
Hamilton	111.5	836	Randolph	98.1	1960
Franklin	111.4	843	Wayne	98.0	1973
Floyd	110.5	902	Shelby	96.7	2049
Morgan	110.5	919	Noble	96.6	2056
Allen	109.8	975	Pulaski	96.1	2097
St. Joseph	109.7	989	Marion	95.7	2125
Martin	109.5	998	Switzerland	95.4	2145
Wells	109.2	1027	Scott	95.1	2170
Boone	109.0	1037	Clinton	92.7	2275
Putnam	109.0	1043	Vermillion	92.4	2288
Adams	108.8	1055	Starke	92.4	2290
Jasper	108.7	1063	Lake	91.8	2317
Fulton	108.7	1067	Fayette	90.4	2391
Kosciusko	108.2	1109	Orange	88.0	2481
Warren	108.0	1126	Crawford	84.0	2612
Perry	108.0	1127	Pike	83.7	2625
Henry	107.9	1142			
Tipton	107.8	1153			
LaGrange	107.5	1181			
Ripley	107.3	1199			
Owen	107.2	1206			
Vanderburgh	107.1	1214			
Johnson	107.1	1215			
Whitley	106.2	1291			
Grant	106.2	1295			
Huntington	106.1	1300			
Harrison	105.5	1350			
Rush	105.4	1361			
Howard	105.4	1362			
Brown	105.3	1374			
Madison	105.0	1407			
Spencer	104.9	1414			
DuBois	104.6	1431			
Clay	104.1	1476			
Jennings	103.8	1508			
Cass	103.7	1516			
Greene	103.5	1537			
DeKalb	103.3	1558			
Clark	103.2	1566			
White	103.1	1579			
Benton	103.0	1580			
Decatur	102.7	1600			
Knox	102.7	1611			
Jefferson	102.5	1625			
Delaware	102.4	1627			
Lawrence	102.3	1631			
Steuben	102.1	1658			
Barthlomew	102.1	1660			

Health Status.

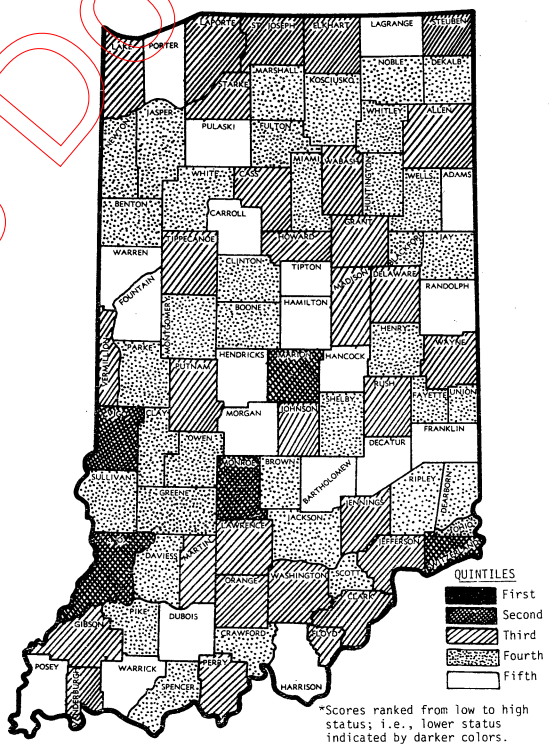


*Scores ranked from low to high status; i.e., lower status indicated by darker colors.

Table 5. Indiana Counties Ranked by Family Status Score and Rank. High score and low rank are most desirable.

County	Score	Rank	County	Score	Rank
Lagrange	125.3	245	Putnam	105.2	1352
Carroll	125.0	254	Orange	105.0	1361
Porter	124.5	265	Wabash	105.0	1364
Franklin	124.3	271	Gibson	105.0	1365
Morgan	124.2	272	Madison	104.8	1379
Adams	121.6	361	Lawrence	104.5	1393
Bartholomew	119.8	425	Wayne	104.1	1418
Decatur	119.0	465	Clark	103.8	1431
Hamilton	119.0	467	Lake	103.3	1454
Warrick	118.6	484	Jennings	102.9	1482
Warren	118.6	487	St. Joseph	102.7	1500
Posey	118.5	492	Howard	102.6	1505
Fountain	118.4	498	Starke	102.4	1516
Harrison	118.4	501	Allen	102.0	1549
Hancock	118.2	509	Delaware	101.6	1568
Hendricks	118.1	516	Perry	101.5	1577
Tipton	117.6	546	Martin	100.6	1639
Randolph	117.5	552	Cass	100.5	1647
Pulaski	116.8	592	Tippecanoe	100.2	1661
Dubois	116.5	611	Vermillion	100.0	1674
Boone	115.9	643	Grant	99.3	1720
Spencer	115.9	649	Vanderburgh	98.7	1762
Fayette	115.2	674	Floyd	98.1	1807
Jasper	115.1	682	LaPorte	97.6	1833
Whitley	114.4	725	Jefferson	97.4	1845
Kosciusko	114.0	751	Knox	92.0	2158
Benton	113.8	767	Monroe	91.8	2167
Wells	113.7	768	Switzerland	91.1	2202
Blackford	113.6	779	Marion	88.7	2321
Shelby	112.9	817	Vigo	87.8	2351
Greene	112.4	851			
Montgomery	111.8	887			
Marshall	111.8	889			
Clay	111.7	897			
Union	111.7	898			
Clinton	111.6	902			
Miami	111.4	911			
Noble	110.9	950			
Daviess	110.5	978			
DeKalb	110.4	983			
White	110.3	986			
Henry	110.3	990			
Parke	110.1	1001			
Jay	109.9	1015			
Ripley	109.7	1033			
Newton	109.5	1043			
Fulton	109.2	1064			
Crawford	109.1	1069			
Dearborn	109.1	1073			
Brown	108.8	1100			
Owen	108.7	1105			
Huntington	108.5	1118			
Jackson	108.5	1123			
Scott	108.4	1132			
Sullivan	107.9	1163			
Ohio	107.9	1164			
Pike	107.4	1195			
Steuben	106.6	1264			
Johnson	105.9	1308			
Rush	105.6	1329			
Elkhart	105.6	1331			
Washington	105.3	1350			

Family Status.

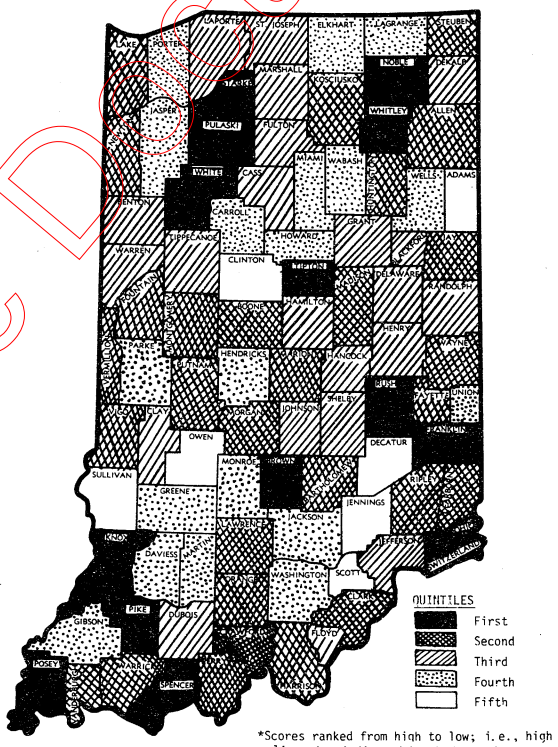


*Scores ranked from low to high status; i.e., lower status indicated by darker colors.

Table 6. Indiana Counties Ranked by Alienation Score and Rank. High score and low rank are most desirable.

County	Score	Rank	County	Score	Rank
Owen	122.1	118	Madison	96.9	2077
Sullivan	118.2	225	Lawrence	96.5	2099
Decatur	116.9	274	Warrick	96.3	2116
Scott	115.7	327	Putnam	96.0	2137
Adams	111.9	538	Morgan	95.6	2158
Jennings	111.6	568	Perry	95.5	2174
Clinton	111.1	602	Vigo	95.1	2203
Gibson	110.4	664	Boone	95.0	2214
Martin	110.3	681	Steuben	93.7	2319
Daviess	109.7	739	Vanderburgh	93.4	2343
Miami	109.4	764	Jay	93.2	2349
Wells	108.6	821	Kosciusko	93.1	2364
Porter	108.3	848	Orange	92.7	2391
Washington	108.3	851	Marion	92.5	2400
Union	107.6	906	Fountain	91.9	2445
Parke	107.2	945	Harrison	91.8	2446
Lagrange	107.2	948	Brown	90.6	2503
Greene	107.0	963	Starke	89.7	2560
Howard	106.8	982	Franklin	89.6	2565
Hendricks	106.8	983	Knox	89.5	2567
Wabash	106.5	1019	Spencer	89.1	2584
Jasper	106.5	1022	White	85.9	2703
Monroe	106.4	1038	Posey	85.8	2707
Elkhart	106.2	1056	Noble	84.8	2739
Jackson	106.2	1057	Whitley	83.6	2771
Carroll	104.8	1228	Ohio	82.5	2791
Hamilton	104.6	1247	Tipton	82.3	2799
Benton	104.3	1286	Pulaski	81.7	2815
Jefferson	104.2	1291	Pike	79.4	2858
Floyd	103.9	1316	Rush	75.9	2923
Tippecanoe	103.8	1323	Switzerland	71.4	2975
Marshall	103.7	1335			
Cass	103.4	1380			
LaPorte	102.6	1463			
Hancock	102.2	1498			
Dubois	102.2	1507			
Fulton	102.0	1537			
Blackford	101.6	1584			
Randolph	101.4	1613			
Clay	101.4	1616			
Johnson	100.9	1666			
Shelby	100.8	1672			
Henry	100.8	1673			
Warren	100.2	1751			
DeKalb	99.7	1801			
Delaware	99.6	1816			
Grant	99.5	1824			
St. Joseph	99.3	1852			
Clark	99.2	1867			
Vermillion	99.0	1875			
Fayette	98.9	1889			
Crawford	98.7	1906			
Dearborn	98.6	1914			
Huntington	98.6	1921			
Lake	98.4	1945			
Montgomery	98.3	1955			
Wayne	98.0	1977			
Bartholomew	97.8	1995			
Newton	97.7	2006			
Allen	97.6	2016			
Ripley	97.2	2044			

Alienation.



*Scores ranked from high to low; i.e., high alienation indicated by darker colors.

NEW 5/80

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